

PARASITISM OF THE SANDALWOOD
(*Fusanus spicatus*, R.B.).

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The Western Australian Sandalwood (*Fusanus spicatus*, R. Br.) is a low tree of about 20 feet, found throughout the drier areas of the State. It was once abundant, but now has been cut out for the greater part along the railway lines, and the larger trees are found only far back in the virgin bush. There is a big market for the wood in Asia, and in addition a certain amount of sandalwood is used for the distillation of the oil. For all practical purposes the Western Australian tree is an excellent substitute for the Indian tree, the wood of which was originally used. The Indian species is a tall tree known as *Santalum album*, and is well known to be parasitic. Rama Rao has found it in India parasitic on over one hundred different species of host plants. In this it rather resembles the Christmas tree of Western Australia, whose parasitism is not limited to one particular plant as is often the case with mistletoes and with fungal parasites. Other plants belonging to the Sandalwood family are well known to be parasites, and it was therefore to be expected that the Western Australian species, which is fairly closely related to the Indian tree, should also share this property. Its habit of growing close to another tree suggests this and it was not surprising to find that in such cases it was drawing on the other tree for nourishment. The favourite host plant seems to be the jam (*Acacia acuminata*), probably because it is the most common tree in districts examined. Numerous Myrtaceae, Leguminosae and other plants are also attacked. The sandalwood sends out branching roots, from which arise slender rootlets. These on coming into contact with the root of a jam tree form at the point of junction a club-shaped haustorium or sucker. This is different from the Christmas tree haustoriogen, which produces a ring of tissue round a host root with suckers on the inside of the ring.

The sandalwood roots rot easily in the ground, and it is not uncommon to find scars on the jam roots where a sucker has died, leaving its mark on the surviving jam roots.

When the attack is on an old tree there is generally little harm done, but when it is on a young tree it frequently kills it.

There is as yet no definite evidence that the sandalwood is an obligatory parasite, *i.e.*, that it *must* have a host plant in order to carry on its natural life functions, but this is probably the case. In India, Dr. Barber and Mr. Rama Rao have tried to raise sandalwoods without a host, but find that they die out as soon as the food materials are exhausted from the seed. They found it to attack an Australian plant, the Blue Gum of the Eastern States, which is cultivated there.

Raising Sandalwoods without the presence of a host plant at Pingelly proved a failure, but when the plantation was left to itself and other plants grew up, the sandalwoods flourished. This, therefore, seems to indicate that the plant is an obligatory parasite.

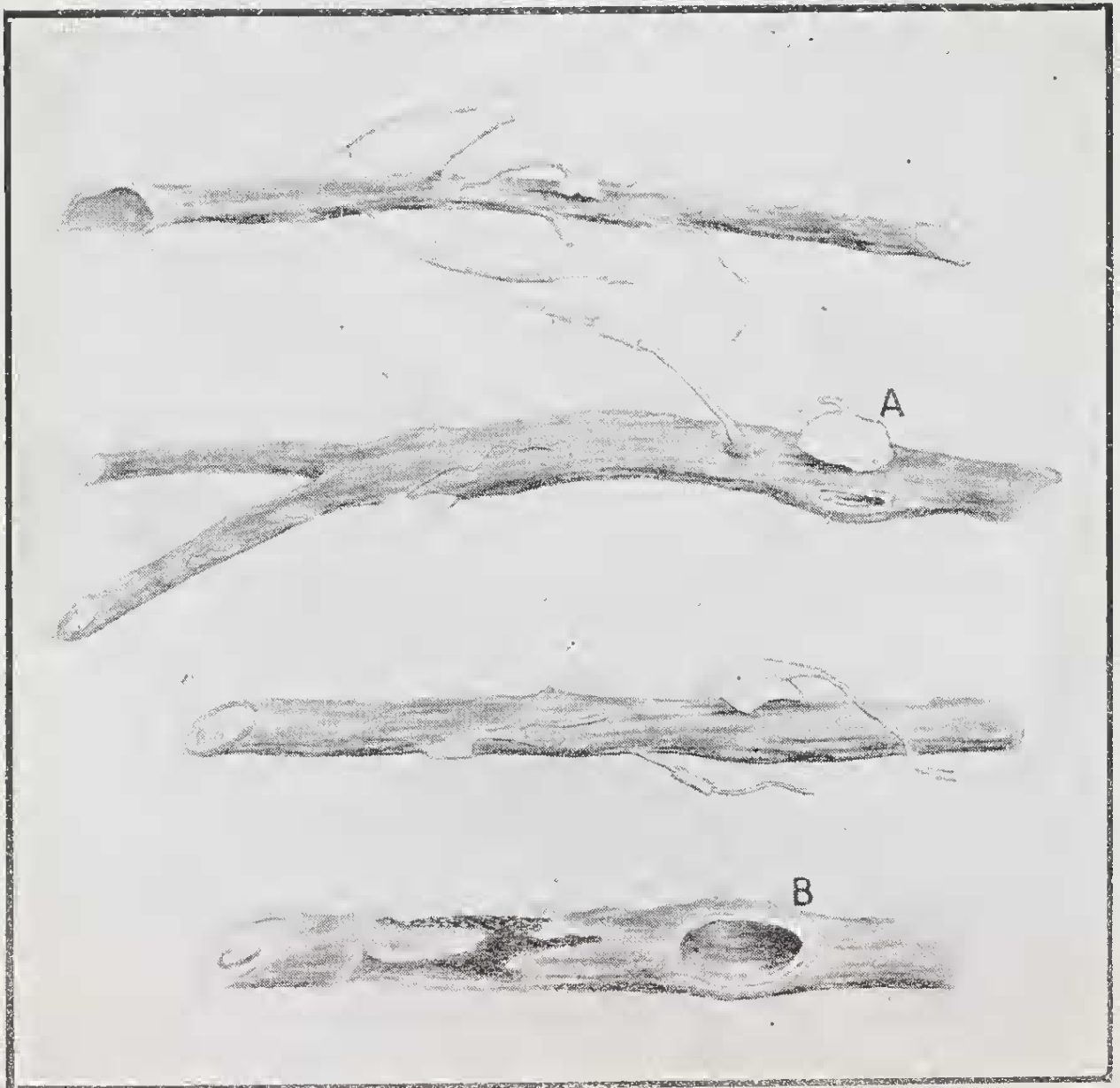


Plate XII.—Roots of *Acacia acuminata* attacked by haustoria.